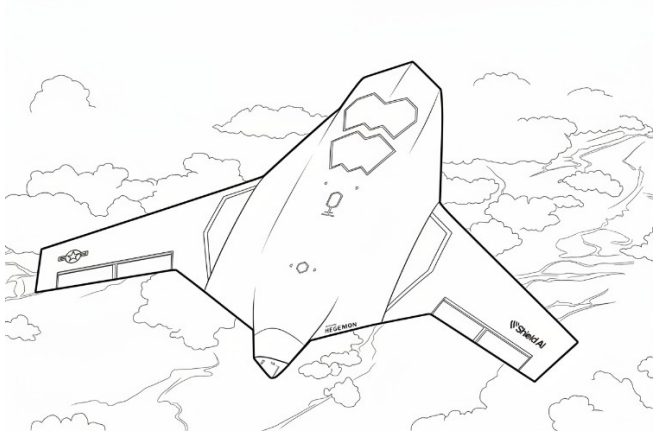
Shield AI X-BAT VTOL Combat Aircraft



IDENTITY & DESIGNATION

Official Designation: X-BAT

Manufacturer: Shield AI (USA)

Propulsion Partner: GE Aerospace (Edison Works)

Type: AI-piloted vertical takeoff and landing (VTOL) combat aircraft

Configuration: Tail-sitter; arrowhead planform with straight leading edge and dramatic sweep (revised 2026)

Public Reveal: October 21, 2025 (initial); revised configuration shown at Sea-Air-Space 2026, April 2026

Status: Pre-prototype; structural pathfinder in fabrication; first VTOL flight tests targeted for 2026

CLASSIFICATION

Domain: Air

Category: Autonomous fighter-class combat aircraft

Sub-Category: Runway-independent VTOL stealth UCAV

Mission Set: Strike, counter-air, electronic warfare, intelligence/surveillance/reconnaissance, manned-unmanned teaming

PHYSICAL SPECIFICATIONS

Wingspan: Approximately 39 feet

Service Ceiling: Approximately 50,000 feet

Combat Radius: Greater than 2,000 nautical miles per Shield AI; cited at approximately 1,000 nautical miles in some published reporting

Range (ferry): Approximately 3,700 km / 2,000 nautical miles per Shield AI

Length / Empty Weight: Not publicly disclosed (limited OSINT)

Footprint: Three X-BATs reportedly fit in the deck space of one legacy fighter or helicopter

PROPULSION & PERFORMANCE

Engine: GE Aerospace F110-GE-129 turbofan (same powertrain family as F-15 and F-16)

Thrust Vectoring: Axisymmetric Vectoring Exhaust Nozzle (AVEN) repurposed from the 1990s F-16 MATV experimental program

VTOL Method: Tail-sitter; vertical launch and recovery from a launch/recovery trailer; thrust vectoring enables transition between vertical and horizontal flight regimes

Launch Infrastructure: Mobile trailer; no runway required; deployable from ships, austere sites, and forward island bases

Speed Class: Fighter-class jet performance (specific Mach figures not publicly disclosed)

AUTONOMY & CONTROL

Autonomy Stack: Shield AI Hivemind — same architecture combat-proven on V-BAT in Ukraine against Russian electronic warfare

Onboard Processing: Mission data processed onboard; navigation, threat recognition, and engagement decisions executed within human-approved parameters

Communications Resilience: Designed to operate in GPS-denied, communications-denied, and degraded environments without satellite links or constant operator input

Manned-Unmanned Teaming: Single commander can fly a team of multiple X-BATs; can also operate as a wingman for crewed aircraft or as a standalone asset

Command Doctrine: Human-on-the-loop, aligned with current U.S. Department of Defense autonomous weapons doctrine

PAYLOAD & MISSION FLEXIBILITY

Internal Payload Bays: Sized comparably to F-35 internal bays; intended to carry many of the same weapons as F-35

Mission Roles: Strike, counter-air, electronic warfare, ISR, suppression of enemy air defenses, and additional roles enabled by modular payload

Stealth Posture: Signature management designed in from the airframe; specific RCS figures not publicly disclosed

Multirole Doctrine: Shield AI emphasizes flexibility as core attribute; mission set determined by payload fit and software configuration rather than airframe variant

PROGRAM & PRODUCTION

Development Timeline: 18 months from program start to flying test article (per Shield AI)

Test Locations: Frisco, Texas (prototype facility); Newton, Kansas (flight test)

Flight Test Sequence: Tethered crane engine tests in proximity to ground and recovery trailer; followed by tethered vertical flights; followed by free flight with VTOL recovery to trailer

First VTOL Flight Target: Late 2026

Mission-Capable Target: 2028

Production Plan: Approximately 150 units per year beginning around 2029

Cost Framing: Shield AI projects 10 to 20 X-BATs at roughly the cost of one B-21 Raider bomber

Acknowledged Risk: Company officials publicly acknowledge expected airframe loss during aggressive 'hardware-rich' test campaign

STRATEGIC CONTEXT

X-BAT is purpose-built for the runway-denial problem in the Pacific. China's missile inventory increasingly threatens U.S. and allied airfields across the first and second island chains, raising the question of how American airpower can be projected into a theater where the runways themselves are targets. X-BAT's tail-sitter configuration removes the runway dependency entirely. The aircraft launches and recovers vertically from a trailer, can be deployed from carrier decks, large surface combatants, or austere island sites, and reduces the infrastructure footprint required to project tactical airpower into contested space. This is the strategic case Shield AI is making, and it is also why Royal Navy interest under Project VANQUISH and broader allied attention from Japan, the Philippines, and Taiwan is significant.

The X-BAT also represents a structural shift in how combat aircraft are developed. Shield AI is not a traditional defense prime. The company built its reputation on the V-BAT VTOL reconnaissance drone, which proved the Hivemind autonomy stack in actual combat against Russian electronic warfare in Ukraine. X-BAT is the company's attempt to transfer that proven autonomy architecture into a higher-end, jet-powered, tactically armed platform. If the program succeeds, it will be one of the clearest examples to date of a technology-driven company entering the combat aircraft sector traditionally dominated by Lockheed Martin, Boeing, and Northrop Grumman. The use of an existing F110 engine and a 1990s thrust-

vectoring nozzle pulled from warehouse storage reflects a deliberate strategy of leveraging mature components to compress timeline and cost — what Shield AI describes as the 'hardware-rich' development model and what others have called the SpaceX approach applied to combat aviation.

SOURCE: *Compiled from open-source information including Shield AI official statements (October 2025 reveal and Sea-Air-Space 2026 press materials), The War Zone (TWZ) coverage including interviews with Armor Harris, Army Recognition (February 2026), Combat Tech, Gadget Review, UAS Vision, and Wikipedia entry for Shield AI MQ-35 V-BAT. All performance figures are approximate or projected. Multiple specifications including length, empty weight, top speed, internal bay dimensions, and stealth signature remain undisclosed in publicly available reporting. Combat radius figures vary across sources and are presented as cited.*